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Education

Ph.D. Biostatistics, University of Pittsburgh, Pittsburgh, Apr 2015.

M.S. Statistics, Korea University, Seoul, Feb 2010.

B.A. Education, Korea University, Seoul, Feb 2007.

Experiences

Assistant Professor, Department of Applied Statistics, Konkuk University, Mar 2018 - Present.

Assistant Professor, Department of Statistics, Keimyung University, Mar 2017 - Feb 2018.

Publications

[1] Ko K.*, **Kim S.*** and Kwon H. (2022) Audio Adversarial Example Using Specific Area Modulation for Speech Recognition System, *in review*, *Co-first author*.

[2] Ko K.*, **Kim S.*** and Kwon H. (2022) Multi-targeted Audio Adversarial Example in Evasion Attack on Speech Recognition System, *in review*, *Co-first author*.

[3] Ko K., Gwak H., Lee E., Kim G., Moon D., Cho Y. and **Kim S.*** (2021) Action recognition models to monitor illegal dumping using zoom-in image sequence data, *Quantitative Bio-Science*, *Corresponding author*.

[4] Kwon H., Ko K. and **Kim S.*** (2022) Optimized Adversarial Example Without Pattern Vulnerability of Classification Score, *IEEE Access*, *Corresponding author*.

[5] Jung S., Min J., Jung S., Suh S., Heo S. and **Kim S.*** (2022) Dental Image Data Generation for Instance Segmentation using Generative Adversarial Networks, *in review*, *Corresponding author*.

[6] Ko K., Kwak H., Thoummala N., Kwon H. and **Kim S.*** (2021) SqueezeFace: Integrative Face Recognition Methods with LiDAR Sensors, *Journal of Sensors*, *Corresponding author*.

[7] Lee H., Thoummala N., Park H., Ham S., Yu J., Hwang J., Heo S., **Kim S.*** (2021) AI-based Dental Prostheses Fabrication using Generative Adversarial Networks, *Quantitative Bio-Science*, *Corresponding author*.

[8] Park Y., Lee H., Shin J., Chon K., **Kim S.**, Cho K., Kim J. and Baek S. (2021) A machine learning approach for early warning of cyanobacterial bloom outbreaks in a freshwater reservoir, *Journal of Environmental Management*.

[9] Han J., Cho K., Lim W. and **Kim S.*** (2021) Reinforcement learning guided by double replay memory, *Journal of Sensors*, **Corresponding author*.

[10] Park Y., **Kim S.**, Chon K., Lee H., Kim J. and Shin J. (2021) Impacts of heavy rain and floodwater on floating debris entering an artificial lake (Daecheong Reservoir, Korea) During the summer, *Desalination and Water Treatment*.

[11] Suh S., Park Y., Ko K., Yang S., Ahn J., Shin J. and **Kim S.*** (2020) Weighted Mask R-CNN for Improving Adjacent Boundary Segmentation, *Journal of Sensors*, **Corresponding author*.

[12] **Kim S.**, Heo S., Yang S., Han J. and Jung S. (2020) Instance Segmentation Guided by Weight Map with an Application to Tooth Boundary Detection, *Quantitative Bio-Science*.

[13] Jung S., Lee E., Lee Y., Ko J., Lee S., Cho J. and **Kim S.*** (2020) Estimation of Particulate Levels Using Deep Dehazing Network and Temporal Prior, *Journal of Sensors*, **Corresponding author*.

[14] Min J., Jung S., Jung S., Yang S. and **Kim S.*** (2020) Grammatical Error Correction Models for Korean Language via Pre-trained Denoising, *Quantitative Bio-Science*, **Corresponding author*.

[15] **Kim S.**, Jung S., Yang S., Han J., Lee B., Lee J. and Han S. (2019) Vision-based Deep Q-learning Network Models to Predict Particulate Matter Concentration Levels using Temporal Digital Image Data, *Journal of Sensors* (SCIE).

[16] Lim J., Bang S., Kim J., Park C., Cho J. and **Kim S.*** (2019) Integrative deep learning for identifying differentially expressed(DE) biomarkers, *Computational and Mathematical Methods in Medicine* (SCIE), **Corresponding author*.

[17] Han S., Park S., Zhong H., Ryu E., Wang P., Jung S., Lim J., Yoon J.* and **Kim S.*** (2019) Estimation of joint directed acyclic graphs with lasso family for gene networks, *Communications in Statistics - Simulation and Computation* (SCIE).

[18] Lim J., Cho J., Kim J., Kim J. and **Kim S.*** (2019) Deeper Integrative Neural Network Analysis for Multi-level Omics Data, *Quantitative Bio-Science*, **Corresponding author*.

[19] Hwang U., Jeong J., Kim J., Cho S. and **Kim S.*** (2019) Computer Vision-based Method to Detect Fire Using Color Variation in Temporal Domain, *Quantitative Bio-Science*, ** Corresponding author*.

[20] **Kim S.*** and Kim S. (2018) Vision-based Predictive Model on Particulates via Deep Learning, *Journal of Electrical Engineering & Technology* (SCIE) ** Corresponding author*.

[21] Lee J., Jhong J., Cho Y., **Kim S.**, Koo J. (2018) Penalized log-density estimation using Legendre polynomials, *Communications in Statistics - Simulation and Computation* (SCIE).

[22] Lee J., **Kim S.***, Jhong J. and Koo J. (2018) Variable Selection and Joint Estimation of Mean and Covariance Models with an Application to eQTL Data, *Computational and Mathematical Methods in Medicine* (SCIE), *Corresponding author*.

[23] **Kim S.**, Kang D. D., Park Y. and Tseng G. C. (2018) Meta-analytic Principal Component Analysis in Integrative Omics Application, *Bioinformatics* (SCI).

[24] Ma T., Huo Z., Kuo A., Zhu L., Fang Z., Zeng X., Lin C., Liu S., Wang L., Rahman T., Chang L., **Kim S.** et al. (2018) MetaOmics: Analysis Pipeline and Browser-based Software Suite for Transcriptomic Meta-Analysis, *Bioinformatics* (SCI).

[25] **Kim S.**, Jhong J., Lee J., Koo J-Y., Lee B. and Han S. (2017) Node-Structured Integrative Gaussian Graphical Models Guided by Pathway Information, *Computational and Mathematical Methods in Medicine* (SCIE).

[26] **Kim S.**, Oesterreich S., Kim S., Park Y. and Tseng G. C. (2017) Integrative Clustering of Multi-level Omics Data for Disease Subtype Discovery Using Sequential Double Regularization, **Received the Distinguished Student Paper Award for ENAR 2015 and ASA Biometrics Section David P Byar Travel Award at JSM 2015**, *Biostatistics*, 18(1):165-179 (SCIE).

[27] **Kim S.**, Lin C. and Tseng G. C. (2016) MetaKTSP: A Meta-Analytic Top Scoring Pair Method for Robust Cross-Study Validation of Omics Prediction Analysis, *Bioinformatics*, 32:1966-1973 (SCI).

[28] **Kim S.**, Lee J., Jhong J. and Koo J-Y. (2017) Meta-analytic Support Vector Machine for Integrating Multiple Omics Data, *BioData Mining*, 10:2 (SCIE).

[29] Han S.*, **Kim S.***, Seok J., Yoon J. and Zhong H. (2017) Estimation of Directed Subnetworks in Ultra High Dimensional Data for Gene Network Problem, *Statistics and Its Interface* (SCIE), *Joint first authors*.

[30] **Kim S.** (2016) Weighted K-means Support Vector Machine for Cancer Prediction, *SpringerPlus (section in statistics)*, 5:1162 (SCIE).

[31] **Kim S.**, Herazo-Maya J. D., Kang D. D., Juan-Guardela B. M., Tedrow J., Martinez F.J., Sciurba F.C., Tseng G.C. and Kaminski N. (2015) Integrative Phenotyping Framework (iPF): Integrative Clustering of Multiple Omics Data Identifies Novel Lung Disease Subphenotypes, *BMC Genomics*, 16:924 (SCIE).

[32] Jhong J., Lee J., **Kim S.**, Koo J-Y. (2017) Joint Modeling for Mean Vector and Covariance Estimation with l1-Penalty, *Quantitative Bio-Science*.

[33] Jung H., **Kim S.**, Lee J., Kim J., Han S. (2017) Differential network analysis for Triple positive and Triple negative breast cancer genes, *Journal of Breast Cancer* (SCIE).

[34] Zhu L., Ding Y., Chen C., Huo Z., **Kim S.**, Oesterreich S. and Tseng G. C. (2016) MetaDCN: meta-analytic framework for differential coexpression network detection with an application to breast cancer, *Bioinformatics* (SCI).

[35] Hwang H., **Kim S.** and Kim H. (2016) Reversible Data Hiding Using Sparse Least Square Predictor via the Lasso, *EURASIP Journal on Image and Video Processing*, 2016:42

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[36] Herazo-Maya J. D.*, Noth I.*, Duncan S. R.*, **Kim S.**, Ma S., Tseng G. C., Feingold E., Juan-Guardela B. M., Richards T. J., Lussier. Y., Huang Y., Vij R., Lindell K. O., Xue J., Gibson K. F., Shapiro S. D., Garcia J. G., and Kaminski N. (2013) Peripheral Blood Mononuclear Cell Gene Expression Profiles Predict Poor Outcome in Idiopathic Pulmonary Fibrosis, *Science Translational Medicine*, 5, 205-136 (SCIE).

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[39] Suryawanshi S., Budiu R. A., Elishaev E., Zhang L., **Kim S.**, Tseng C. G., Mantia-Smaldone G., Ma T., Donnellan N., Lee T., Mansuria S., Edwards R., Huang X. and Vlad A. M. (2014) Complement Pathway Is Frequently Altered in Endometriosis and Endometriosis-Associated Ovarian Cancer, *Clinical Cancer Research*, 23, 6163-74 (SCIE).

[40] Suh Y., **Kim S.**, Kim S., Park J., Lim H., Park H., Choi H., Ng D., Lee M., and Nam M. (2013) Combined Genome-Wide Linkage and Association Analyses of Fasting Glucose Level in Healthy Twins and Families of Korea, *Journal of Korean Medical Science*, 28, 415-423 (SCI).

Book Chapter

[1] **Kim S.**, Huo Z., Park Y. and Tseng G. C. (2015) MetaOmics: Transcriptomic Meta-Analysis Methods for Biomarker Detection, Pathway Analysis and Other Exploratory Purposes pp. 39-67, Book chapter in Integrating omics data: statistical and computational methods. *Cambridge University Press*.

Patents

[1] **Kim S.** and Heo J., "Method for Analyzing Fine Dust and Apparatus for Executing the Method", No. 10-1952122, Feb 2019, *Korean Intellectual Property Office*, Registered.

[1] **Kim S.** and Jung S., "Method for Estimating Concentration and Apparatus for Executing the Method", No. 10-2233402, Mar 2021, *Korean Intellectual Property Office*, Registered.

Research Grants

[1] "Automated robots on the basis of 3D point cloud data in coping with COVID19", *National Research Foundation of Korea Grant*, 1375M KRW, June 2021–Feb 2024 (한국연구재단 기초연구실지원 사업, 총 13억7,500만원/33개월).

[2] "Action recognition models guided by semantic segmentation with the application to monitoring recyclable waste", *National Information Society Agency*, 140M KRW, Jan 2021–Dec 2021 (중소벤처기업부, 총 1억4000만원/12개월).

[3] "Building AI datasets for training predictive models", *National Information Society Agency*, 125M KRW, Sep 2020–Dec 2020 (한국정보화진흥원, 총 1억2500만원/4개월).

[4] "Untact identity verification via facial recognition technique paralleled to vision telecommunication", *Small and Medium Business Administration*, 144M KRW, Sep 2020–Sep 2022 (중소벤처기업부, 총 1억4400만원/24개월).

[5] "Statistical artificial intelligence (AI) algorithms to monitor deleterious and infinitesimal environment materials (particulates and microplastics)", *National Research Foundation of Korea Grant*, 150M KRW, Mar 2020–Feb 2023 (한국연구재단, 총 1억5,000만원/36개월).

[6] "Deep learning based image processing techniques to develop a fine dust metering device", *Small and Medium Business Administration*, 300M KRW, Jan 2020–Dec 2020 (중소벤처기업부, 총 3억원/12개월).

[7] "Techniques to meter particulate matter levels using temporal digital image data", *Research Institute of Industrial Science and Technology (RIST)*, 20M KRW, Dec 2019–Feb 2020 (포스코, 총 2,000만원).

[8] "Integration methods of multi-level omics data via bigdata analytics", *National Research Foundation of Korea Grant*, 90M KRW, Mar 2017–Feb 2020 (한국연구재단, 총 9,000만원/36개월).

[9] "Development of statistical methodologies for integration of multi-omics data", *National Research Foundation of Korea Grant*, 34M KRW, Sep 2016–Aug 2017 (한국연구재단, 총 3,400만원/12개월).

Honors, Awards & Fellowships

2015 Best Student Presentation Awards, Graduate School of Public Health, University of Pittsburgh, Mar, 2015.

2015 Student of the Year, ASA Pittsburgh Chapter, Apr 2015.

ASA Biometrics Section David P Byar Travel Award, American Statistical Association (ASA), Aug 2015.
Title: "Integrative multi-omics clustering for disease subtype discovery by sparse overlapping group lasso and tight clustering".

Distinguished Student Paper Award for ENAR 2015, ENAR, Mar 2015.
Title: "Integrative multi-omics clustering for disease subtype discovery by sparse overlapping group lasso and tight clustering".

References

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